

CLAIMS

[1] A liquid crystal display comprising two substrates on which alignment films for orienting liquid crystal in a predetermined direction are formed, the alignment films facing each other across a predetermined gap by a sealing material to bond the pair of substrates between which a liquid crystal layer is sandwiched, wherein

the sealing material contains a filler having a mean particle size of less than 0.5 μm ,

the liquid crystal material used in the liquid crystal layer has a refractive index anisotropy at room temperature of 0.16 or more, and a cell gap is 3 μm or less.

[2] A liquid crystal display as set forth in claim 1, wherein the liquid crystal material used in the liquid crystal layer has a refractive index anisotropy at room temperature of 0.18 or more.

[3] A liquid crystal display as set forth in claim 1, wherein the content of the filler contained in the sealing material is within a range of 15 to 40 wt%.

[4] A liquid crystal display as set forth in claim 1, wherein a maximum particle size of the filler contained in the sealing material is 1.5 μm or less.

[5] A liquid crystal display as set forth in claim 1, wherein a specific surface area of the filler contained in the sealing material is 30 m^2/g or less.

[6] A liquid crystal display as set forth in claim 1, wherein there is an alignment film under the seal of at least one substrate.

[7] A liquid crystal display as set forth in claim 1, wherein the alignment film material is an inorganic alignment film.

[8] A liquid crystal display as set forth in claim 3, wherein the alignment film material is an inorganic alignment film.

[9] A liquid crystal display as set forth in claim 4, wherein the alignment film material is an inorganic alignment film.

[10] A liquid crystal display as set forth in claim 5, wherein the alignment film material is an inorganic alignment film.

[11] A projection type display apparatus comprising:

a light source,

a condensing optical system for guiding the light emitted from the light source to a liquid crystal display device, and

a projection optical system for enlarging and projecting light modulated by the liquid crystal display device, wherein

the liquid crystal display device has

two substrates on which alignment films for orienting

liquid crystal in a predetermined direction are formed, the alignment films facing each other across a predetermined gap by a sealing material to bond the pair of substrates between which a liquid crystal layer is sandwiched,

5 the sealing material contains a filler having a mean particle size of less than 0.5 μm ,

the liquid crystal material used in the liquid crystal layer has a refractive index anisotropy at room temperature of 0.16 or more, and a cell gap is 3 μm or less.

10 [12] A projection type display apparatus as set forth in claim 11, wherein the content of the filler contained in the sealing material is within a range of 15 to 40 wt%.

[13] A projection type display apparatus as set forth in claim 11, wherein a maximum particle size of the filler
15 contained in the sealing material is 1.5 μm or less.

[14] A projection type display apparatus as set forth in claim 11, wherein a specific surface area of the filler contained in the sealing material is 30 m^2/g or less.

[15] A projection type display apparatus as set forth in
20 claim 11, wherein there is an alignment film under the seal of at least one substrate.

[16] A projection type display apparatus as set forth in claim 11, wherein the alignment film material is an inorganic alignment film.